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the greater part of the upper Ohio Valley, growing principally upon earlier glacial deposits. *H. flava*, although as yet seen only in cultivation by the writer, may then be expected to be found at any time as an escape in the locality given. Dr. O. E. Jennings relates of collecting this species in Ohio, although it is not listed by Schaffner.¹

Central High School, St. Louis, Mo.

COMPARATIVE MIGRATION OF OUR BIRDS IN AUTUMN.

BY BROTHER ALPHONSUS, C. S. C.

Between the earliest and latest date of the Cowbird there were 58 days, which would indicate that either the writer missed the date in one year by a very wide mark or that the Cowbird can be very irregular in its time of migrating. The date for 1911 was 23 days earlier than in 1912 and 28 days earlier than in 1913. The two regular dates were in October, which is likely the usual time of migrating.

In 1909 the Red-winged Blackbird was observed last on August 26 and in 1911 no record was made for autumn. These facts show that the species is exceedingly rare at this season of the year, and will be found only by a fortunate observer. The two dates in November for 1912 and 1913, which are two weeks apart, gives us the probable time of departure as well as the difference of one year from another.

The Hermit Thrush was very regular in its arrival from the

¹ "Catalogue of Ohio Vascular Plants." Schaffner, J. H. Ohio State University Bulletin, Vol. 28, No. 224.

Linnaeus. (Species Plantarum, 1753, p. 324). admitted the now recognized species *H. flava*, (*flavus*), and *H. fulva*, (*fulvus*), as varieties of *H. Lilio Asphodelus* both forming a composite type species for the genus. Dr. J. A. Nieuwland has pointed out, (AMERICAN MIDLAND NATURALIST, Vol. II., p. 106), and also in a recent letter to the writer, that an interpretation of Linnaeus consistent with the rules of Rochester and Vienna, makes the form recognized as *H. flava* the type of the genus, as it was by examination of Pre-Linnaean authors. It is evident from the above therefore, that the valid name according to the nomenclature of *H. flava*, is really *H. Lilio Asphodelus*.

north for three years, but in 1912 it was not seen until Oct. 13, which was the only record for the species that autumn. (When two dates are given for any species, that means the first was the date of arrival from the north). It will be noted that the Hermit Thrush was regular for two years in the time of its departure, but 8 and 9 days earlier and 9 and 10 days later than the regular dates in the other two years—18 days being the difference between the earliest and the latest date of departure.

The Kingbird was regular in its time of leaving except in 1912, when it departed on August 22. This date was 15 days earlier than the latest date, which was on Sept. 6. Barring the one early date, this species left regularly in the first week of September.

The Hummingbird is seldom recorded by the writer at any season of the year, and this fact will probably explain the marked difference in the dates of migration for the species. Only two dates—in September—can be called regular, the third—in August—being 23 days earlier than the latest date. The August date must have been far from the true time of departure, yet it was obtained from a fairly diligent search.

Considerable disparity is shown in one of the dates of the Vesper Sparrow—Sept. 30, 1912. This date was 26 days later than the earliest date. No record was made in 1913, which, with the single late date in 1912, would indicate that it is difficult to determine the time of departure for this species. The regular dates are too early for this sparrow, which—being such an early spring migrant—must tarry with us as late as October.

In the Baltimore Oriole we have a species that shows the greatest regularity of any of our birds in the time of its autumn migration. Only 2 days between the earliest and the latest date, is the remarkable record for this species.

The Barn Swallow shows 18 days between to be the difference between its earliest and latest date of migration. The time between the third date—August 31—and the latest date—Sept. 6—the writer thinks indicates the true time of migration.

Only two dates were made for the Loggerhead Shrike—one in August and one in September—with the difference 24 days. This species is difficult to record, especially after the nesting season; and the single record for September is hardly sufficient to determine with satisfaction when the species migrates.

The four records of the Purple Martin are divided between August and September—the dates of each set being regular. There are 16 days between the earliest and latest dates, and 12 days separating the other records. From these figures we can see that this species may leave on dates that are 1 or 2 days apart or within a period that is a little less or a little more than a fortnight.

The three dates of the Yellow Palm Warbler place this species among the migrants that are regular in their time of leaving, two days being the greatest difference. But the same regularity is not observable in the two dates of arrival—12 days separating them.

The Bronzed Grackle presents a case of great disparity in its dates of migration, no fewer than 54 days intervening between the earliest and the latest dates. But such an early record as September 15 may be set aside in determining the true time of migration for this species; and the interval between Oct. 20 and Nov. 8—18 days—may be taken as the probable period in which this grackle usually departs.

The Warbling Vireo showed regularity in all of its dates except one, which was 10 days later than the earliest date. The Redstart was more regular still—two of the dates being identical and the others, 3 and 8 days later respectively. The Golden-crowned Kinglet must also be ranked among the regular arrivals in autumn—5 days making the longest interval; but there is less regularity in the time of departure.

A very curious case both of irregularity in migrating and of non-migration was that of the Red-headed Woodpecker. Between the earliest and the latest date there were 23 days; between the earliest and a later date there were 8 days. In 1913 the species did not migrate; but remained throughout both autumn and winter. A very interesting occurrence indeed was this non-migration of a species that left for three previous years in the month of September. What is the explanation? The winter proved a very mild one; and could the bird have known so long beforehand that the season would not be severe? I think the bird must have been able to determine this, but how I can not say.

Two species that showed marked regularity in three of their dates, but great disparity in one date, were the Myrtle Warbler and the Snowbird. The early arrival of the Snowbird on Sept. 4,

1913—was 13 days ahead of the earliest date of the other three years; while the Myrtle Warbler was 26 days earlier in 1911 than any other of its dates. Perhaps the early date of the Snowbird may be accounted for as the result of greater diligence on the part of the writer; but such an explanation would not be correct for the Myrtle Warbler. In 1911 this species was frequently seen after Sept. 11, which is 14 days earlier than the earliest date of any other year; and the characteristic call-note of the species always makes its presence practically certain.

In the Red-breasted Nuthatch we have a species that is not recorded often enough to ascertain its approximate date of migration. The records obtained show great disparity, with 52 days between the extreme dates.

When the Tree Sparrows first arrives from the north, the birds are neither numerous nor in song, and consequently may be overlooked unless the observer is both experienced and diligent. My records for the species fall into two sets—two in November and two in October, but I think that the latter dates may be taken as the more exact, and so in the fourth week of October the careful observer will be sure to find a few Tree Sparrows.

My records for the Robin do not give conclusive evidence about the correct time of migration for the species. Two dates fall close together and two others are almost five weeks apart. This great irregularity is likely due to the habit which the Robin has of moving about a good deal in autumn in search of fruit—wild or cultivated—for food.

The writer has usually omitted from his comparison those species for which he has but a single date, hoping that future observations will furnish a sufficient number of records for a comparison.

	1909	1911	1912	1913
Cowbird	Aug. 18	Sept. 18	Oct. 11	Oct. 16
Red-winged Blackbird	Aug. 26		Nov. 1	Nov. 15
Hermit Thrush	Aug. 29-Oct. 22	Aug. 30-Oct. 21	Oct. 13	Aug. 30-Nov. 1
Kingbird	Sept. 2	Sept. 3	Aug. 22	Sept. 6
Orchard Oriole	Sept. 3			
Hummingbird	Sept. 4	Sept. 27	Aug. 14	Sept. 20
Vesper Sparrow	Sept. 4	Sept. 6	Sept. 30	
Baltimore Oriole	Sept. 4	Sept. 3	Sept. 5	Sept. 4
Barn Swallow	Sept. 6		Aug. 19	Aug. 31
Loggerhead Shrike	Sept. 6		Aug. 12	

	1909	1911	1912	1913
Purple Martin	Sept. 8	Aug. 23	Sept. 5	Aug. 25
Long-billed Marsh Wren	Sept. 8			Aug. 28
Least Flycatcher	Sept. 11	Aug. 22		Aug. 25-Sept. 26
Yellow Palm Warbler	Sept. 15-Oct. 15		Oct. 12	Sept. 27-Oct. 14
Bronzed Grackle	Sept. 15	Oct. 20	Nov. 8	Oct. 25
Warbling Vireo	Sept. 16	Sept. 27	Sept. 13	Sept. 15
Red-eyed Vireo	Sept. 17		Aug. 6	Sept. 3
Redstart	Sept. 20	Sept. 24	Sept. 20	Aug. 29-Sept. 28.
Maryland Yellowthroat	Sept. 21			Sept. 13
Cedarbird	Sept. 23	Sept. 10	Aug. 31	Sept. 11
Red-headed Woodpecker	Sept. 24	Sept. 1	Sept. 9	
Wood Pewee	Sept. 24	Sept. 10	Sept. 18	Sept. 28
Greater Yellowlegs	Sept. 24	Sept. 20	Oct. 25	Aug. 31
Brown Creeper	Sept. 25 arrival	Sept. 17 arrival		Sept. 13 arrival
Myrtle Warbler	Sept. 25-Oct. 1	Aug. 31-Oct. 29	Sept. 30-Oct. 27	Sept. 27-Nov. 6
Snowbird	Sept. 26 arrival	Sept. 17 arrival	Sept. 28 arrival	Sept. 4 arrival
Catbird	Sept. 26	Sept. 4	Sept. 18	Sept. 25
Indigo Bird	Sept. 26	Sept. 27	Sept. 22	Oct. 5
White-throated Sparrow	Sept. 28-Nov. 1	Sept. 27-Oct. 18	Sept. 26-Oct. 25	Sept. 15-Oct. 27
Red-breasted Nuthatch	Sept. 30	Sept. 4	Oct. 26	Sept. 20
Black-billed Cuckoo	Sept. 30			Sept. 14
Chimney Swift	Oct. 4	Oct. 7	Sept. 29	Sept. 24
Yellow-billed Cuckoo	Oct. 7	Sept. 16	Sept. 25	Sept. 24
Yellow-bellied Sapsucker	Oct. 4-10	Sept. 5	Oct. 3	Sept. 19-Oct. 11
Phoebe	Oct. 10	Oct. 17	Sept. 25-Oct. 4	Oct. 13
Brown Thrasher	Oct. 12	Sept. 20	Sept. 13	Oct. 9
Nighthawk	Oct. 13			Sept. 8
Kingfisher	Oct. 13	Oct. 25	Oct. 27	Nov. 14
House Wren	Oct. 16	Sept. 21	Oct. 8	Oct. 14
Bluebird	Oct. 21	Nov. 1	Nov. 8	Oct. 31
Fox Sparrow	Oct. 23			
Meadowlark	Oct. 28	Oct. 23	Oct. 15	Nov. 5
Towhee	Oct. 28	Nov. 8	Oct. 24	Nov. 2
Chipping Sparrow	Oct. 29	Oct. 12	Sept. 4	Oct. 17
Hell Diver	Oct. 30	Oct. 28	Oct. 16	
Killdeer	Nov. 1	Oct. 14	Oct. 21	Oct. 31
Robin	Nov. 4	Nov. 21	Oct. 27	Nov. 5
Tree Sparrow	Nov. 9 arrival	Nov. 15 arrival	Oct. 25 arrival	Oct. 21 arrival
Goldfinch	Nov. 16	Nov. 24	Nov. 19	Dec. 14
Flicker	Nov. 18	Oct. 16	Oct. 15	Oct. 11
Cardinal	Nov. 20	Nov. 8	Nov. 13	
Northern Shrike	Nov. 29 arrival		Nov. 25 arrival	
Alder Flycatcher	Aug. 22			Aug. 14
Black and White Warbler	Aug. 22			Aug. 29-Sept. 27
Yellow-bellied Flycatcher	Aug. 27			
Crested Flycatcher		Sept. 1	Sept. 13	Sept. 12
Pine Warbler		Sept. 24	Sept. 14	Sept. 11-Oct. 26

	1909	1911	1912	1913
Black-throated Green Warbler		Sept. 29	Sept. 17	Aug. 30-Oct. 11
Spotted Sandpiper		Oct. 3	Aug. 5	
Chickadee		Oct. 9 arrival	Oct. 25 arrival	Oct. 6 arrival
Winter Wren		Oct. 14-Nov. 4		
Mourning Dove		Oct. 15	Sept. 23	
Field Sparrow		Oct. 29	Oct. 16	Oct. 27
Canada Geese		Nov. 1	Nov. 18	Oct. 20
Song Sparrow	Nov. 8	Nov. 15	Dec. 15	Dec. 7
Yellow Warbler			Aug. 6	Aug. 3
Wilson Wargler			Aug. 31	
Whip-poor-will			Sept. 20	

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ERRATA.

Page 138, line 6. Scratch:—Rachis folii et petioluli dense albido-tomentori, marginaliter saltem.

Page 144, last line:—panes read paene.